

## **Evaluation of Commercially Available Carbonated Beverages as Toilet Cleaners**

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### **ABSTRACT**

*Due to continuous use, most toilets develop stains. To overcome this problem, there are a large number of acid based cleaners that are generally used. These tend to be expensive and in the current investigation, we have evaluated the use of different commercially available carbonated beverages as toilet cleaner substitutes. Of the three carbonated beverages, (Coca cola, Thumbs up and Sprite), Coca cola was found to be most effective in its cleansing action. The highly acidic nature of this beverage was found to be responsible for its activity.*

**Keywords-** *Carbonated beverages; Cleansing action; Cost-effective*

### **I. INTRODUCTION**

Toilets are essential for human kind and often get stained. These stains are caused due to deposition of minerals from hard water and organic components as well. In addition, there is also growth of micro organisms under these conditions. These stains are often stubborn and cannot be easily removed. Generally acid based toilet cleaners are used to address this issue. These toilet cleaners are expensive and we have tried to evaluate the use of carbonated beverages for this purpose.

### **II. METHODOLOGY**

- Take three equal quantities of Sprite, Thumbs up and coca cola to experiment on three similarly stained urinals.
- Pour each sample on respective urinal uniformly.
- Let it stay for about 60 minutes.
- After an hour scrub the three urinals with a toilet brush to remove all the stains.
- Wash them clean with water to record the observations.

### **III. CHEMICAL REACTIONS**

The stains are mainly due to calcium carbonate. On reaction with the acidulate in the coke, soluble bicarbonates are formed. This results in the removal of stains.

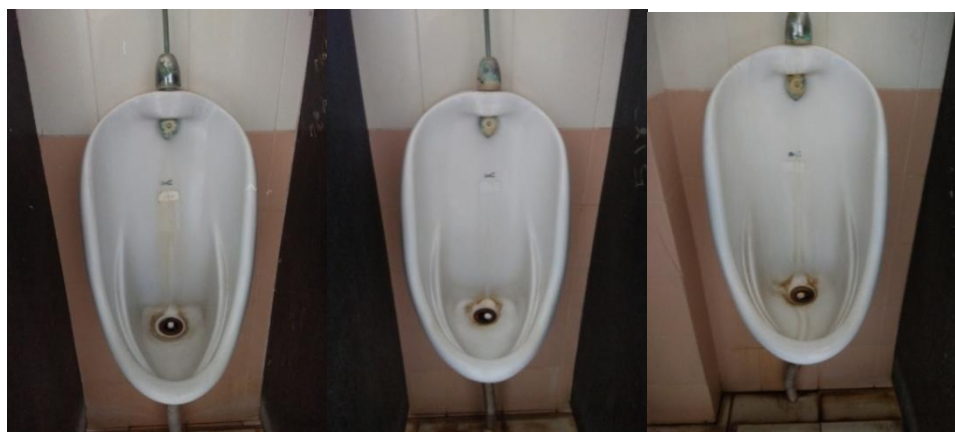


insoluble

soluble

#### **IV. RESULTS**

The toilets being investigated were visibly stained. Fig 1 is representative one such stained toilet.

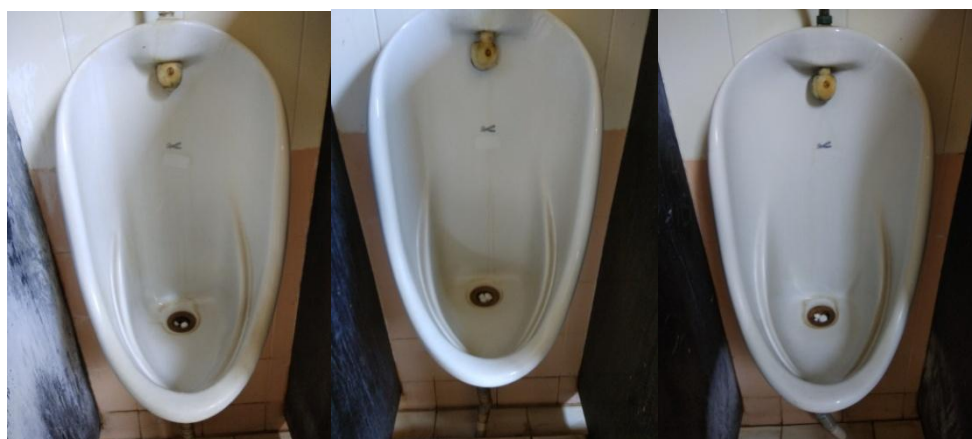


**Before**

**Fig 1**

**Figure 1 An image of the toilet under investigation before treatment.**

After treatment with the three carbonated beverages, the stains on the toilet were seen to be removed. Coca cola was found to be most effective among the three. Figure 2 represents an image of the toilet after treatment with Sprite, Thumbs Up and Coca Cola. It is clearly observed that the carbonated drink was effective in removing stains associated with the toilet.



**Sprite**

**Thumbs Up**

**Coca Cola**

**After**

**Figure 2 An image of the toilet under investigation after treatment with Sprite, Thumbs Up and Coca cola**

To find out why Coco cola was most effective we determined the pH of the three carbonated beverages. Carbonated beverages are highly acidic (Edwards et al 1999). Table 1 shows the pH of the three beverages. It was observed that coca cola was most acidic with pH as low as 2.5.

Table 1. pH of the three carbonated beverages

Carbonated beverage	pH
Sprite	3.3
Thumbs up	2.7
Coca cola	2.5

## **V. CONCLUSIONS**

From the recorded observations, the use of carbonated beverages is quite effective in toilet maintenance and hygiene. Due to its cheaper cost it is a good substitute for highly acidic and comparatively costlier toilet cleaners. However, there are a few limitations like; diet cokes do not clean the toilets as effectively as the original coke does. Another limitation is that the sample has to be kept undisturbed for about an hour to clean it effectively, before washing it with water. The most effective cleanser, coke can also be used to remove stains and impurities from wash basins, unclean floor etc. While the comparatively milder Sprite can be used to clean or polish other metal surfaces. We should use Cold Drinks for cleaning rather than drinking it.

## **VI. ACKNOWLEDGEMENT**

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